Enabling Total Connectivity – Security in Firmware Authentication

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Agenda

- **Influences in Digital Devices**
  - Convergence
  - Total Connectivity
- **Security – The Big Obstacle to Both**
- **Phoenix Technologies Overview**
- **World Class Security through Firmware**
- **DeviceConnect™ – Security Built In and Always On**

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Digital Convergence

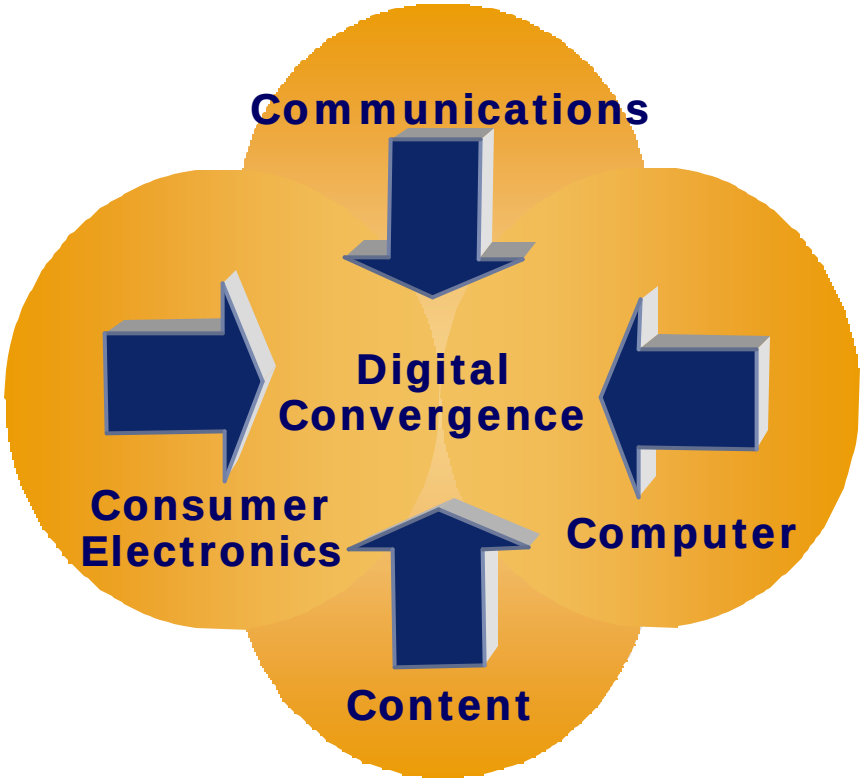
More Features

Content / Services

Information Technology
Internet Connectivity

Reduced Cost / Price

Global Competition



Provides a new class of services for intelligent digital devices

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The Path To Total Connectivity

- **Mainframe era: no one connected to anything**
- **Dumb terminals: many connected to isolated mainframe**
- **LANs: intra-Enterprise connectivity**
- **Internet era: inter-Enterprise connectivity**
- **Wireless: everyone to everyone all the time**

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What's Driving Total Connectivity?

- **Low cost, pervasive microprocessor power**
- **Low cost, pervasive bandwidth**
- **Standards for communication**
- **Applications offering economic value and consumer appeal that depend on above**

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Security Concerns Impede Total Connectivity

- **Content won't be available unless rights are secured**
- **Open networks must be guarded against intruders**

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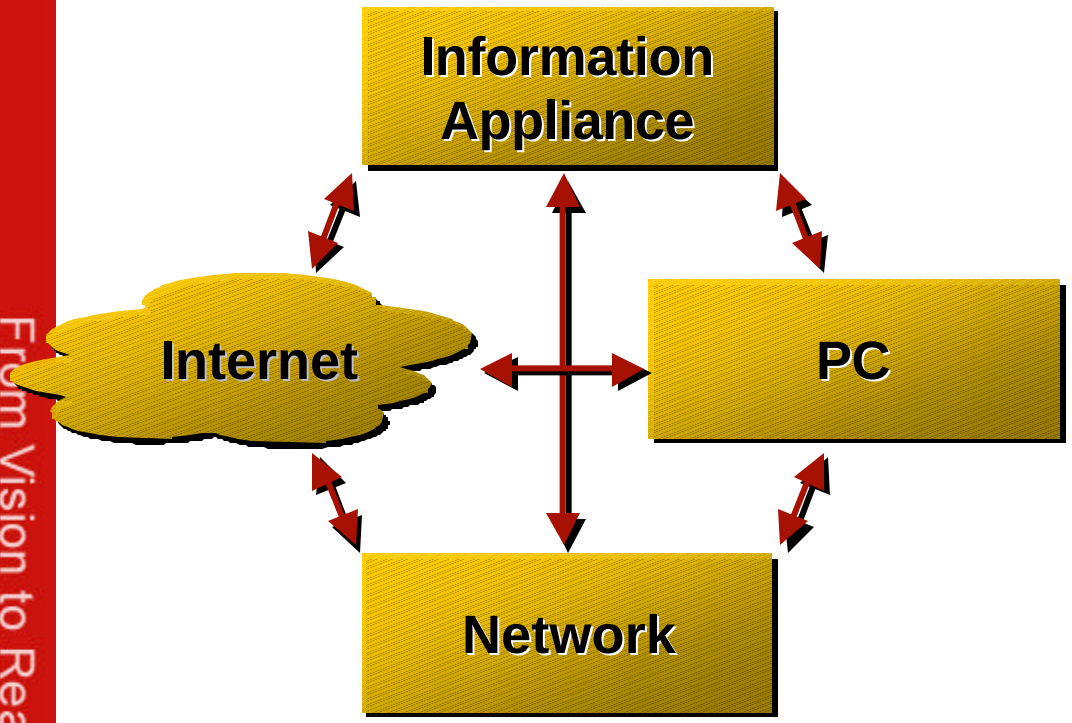
Security Is More Important than Ever



- UserID/password vulnerabilities
- Unauthorized access, software, & peripherals
- Identity "spoofing" by intruders
- OS weaknesses
- Wireless vulnerabilities
- Insider attacks

70% of Security Breaches Are by Authorized Users

Cost of the Average Insider Attack is $2.7 M

Source: Bear Stearns, FBI

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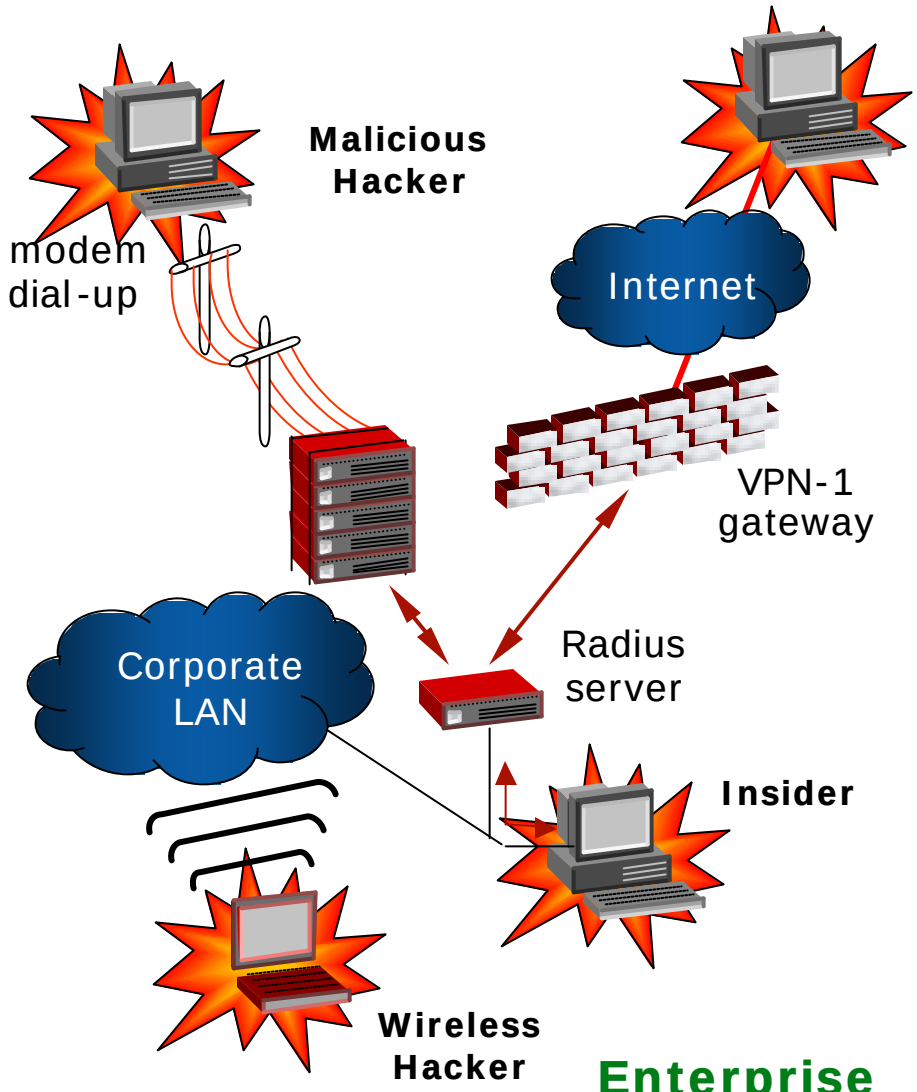
You Might Not Know Who's on Your Network



- **UserID/password alone leave you vulnerable**
  - Windows
  - Web
  - Remote access
  - Wireless

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Network Breaches Cost Money!

- 90% of information security managers have detected breaches at their organizations within a year – CIO, March 2001
- 74% of companies have experienced financial losses because of cybercrime – CIO Magazine, March 2001
- The cost of the average insider attack is $2.7M – FBI/CSI, July 01
- The most serious financial losses occurred through theft of proprietary information: 34 of 538 respondents reported losses of $151,230,100 - FBI, 12 March 2001
- "There is purported to be somewhere in the range of $12 billion to $13 billion in damage from malicious attacks last year alone (2001)" – John W. Thompson, Chairman/CEO Symantec

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Wireless Networks Increase the Problem

- **“During a recent 15-minute cab ride in Manhattan, 77 of the 106 Wi-Fi networks I found used no encryption. If attackers use a Wi-Fi network as a launching pad, there's very little chance that they'll be caught.”**

  - Michael Sutton, ZDNet

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Prevention Is the Best Strategy

- **"[…] securing a computer is more cost effective than hiring consultants to come in and do the detective work afterward"** - Fred Cohen, director of the online investigations program for the University of New Haven, Conn.

- **University of Wisconsin case study quantifies the costs:**
  - It took less than a minute to breach network security but 34 hrs (on average) to investigate
  - 34 hours consulting expertise would cost $22,000

- **Gramm-Leach-Bliley Act and**
- **Health Insurance Portability and Accountability Act**
  - Mandates data protection by financial industry
  - And on healthcare for patient record security

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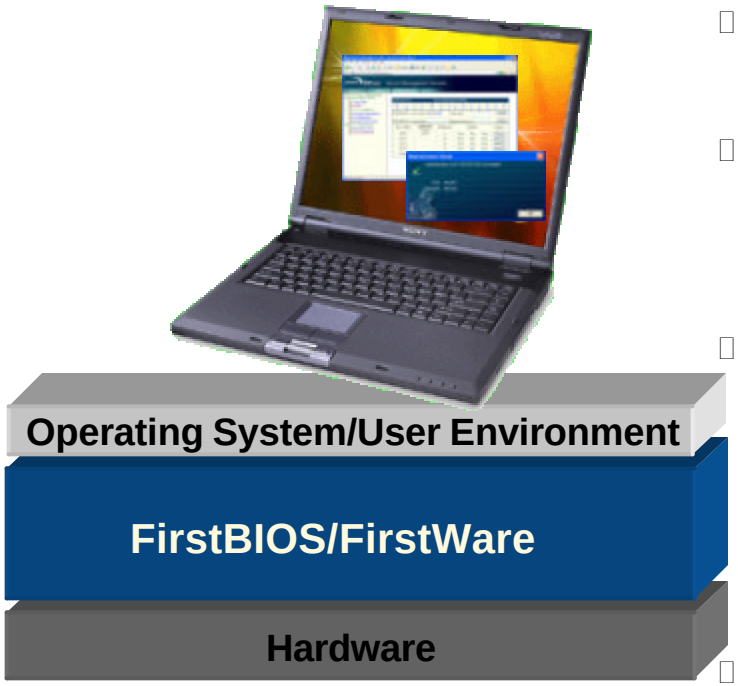
Something Better…Firmware-Based Security

World-class security solution that better protects corporate assets through embedded two-factor authentication, rooted in BIOS



- **Unique, ROM based & tamper-proof**
- **Easy to Use**
  - Built-in
  - Transparent and automatic
- **Cost Effective, High Value**
  - Acquisition
  - Deployment
  - Management
  - Support
- **Works with existing systems, infrastructure, and processes**

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Phoenix Technologies

- **Founded 1979 (NASDAQ:PTEC)**
- **Nearly 25 years of continuous market leadership**
- **Designed into hundreds of millions of units**
  - BIOS and Firmware-based applications
- **Worldwide presence**
  - Headquartered in San Jose, California; offices throughout the US as well as Japan, Taiwan, Korea, China, Hungary, and Germany

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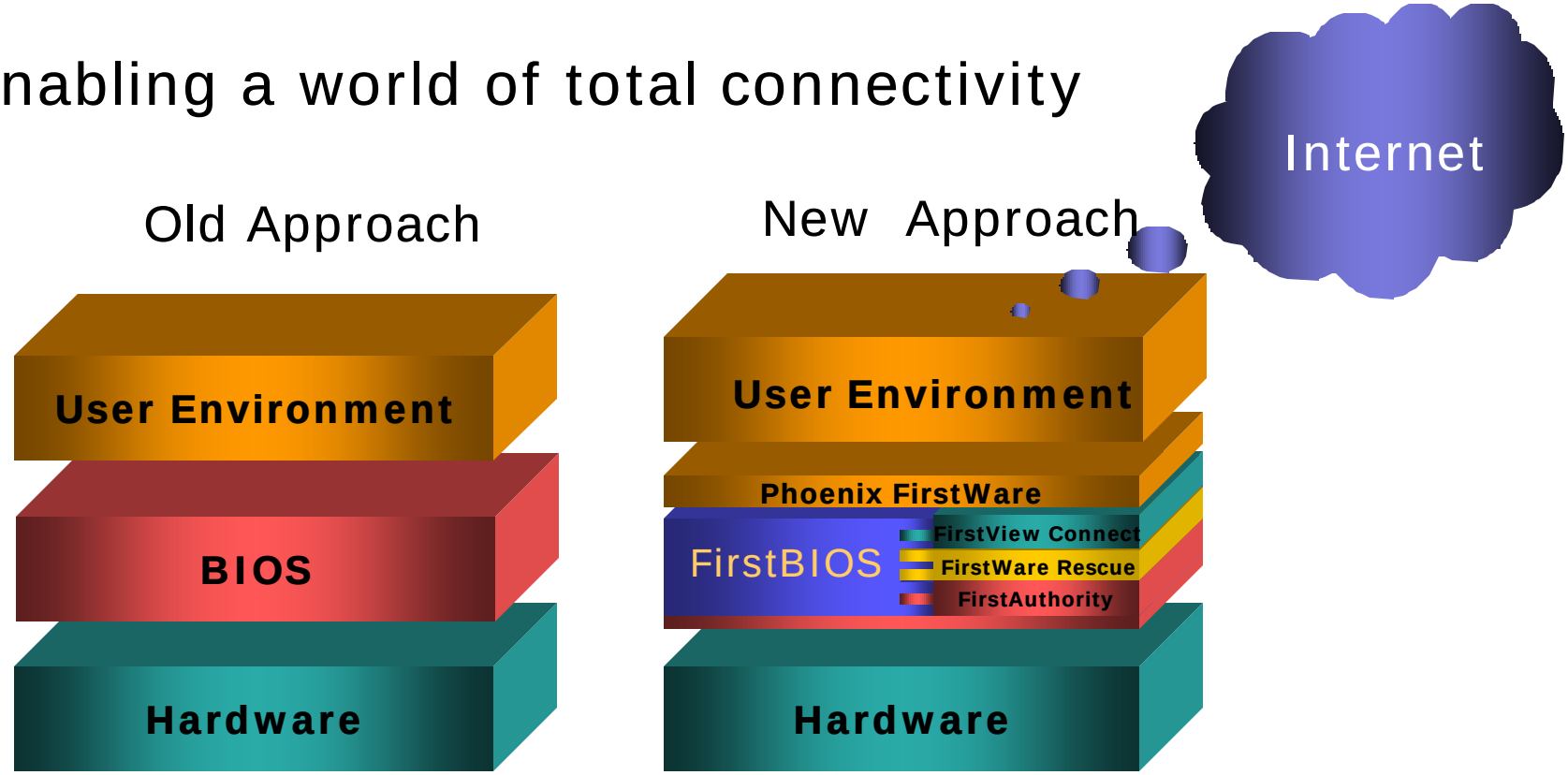
Phoenix Solution

Enabling a world of total connectivity



Extends BIOS with features designed to enhance, secure, complement, and empower digital convergence and total connectivity

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A New Approach

- **Integrated system software that delivers *'first intelligence'* to the hardware**
- **Powerful pre-OS applications for improved platform reliability and security**
- **Enables hardware to be re-configured and upgraded in the field, extending device life**

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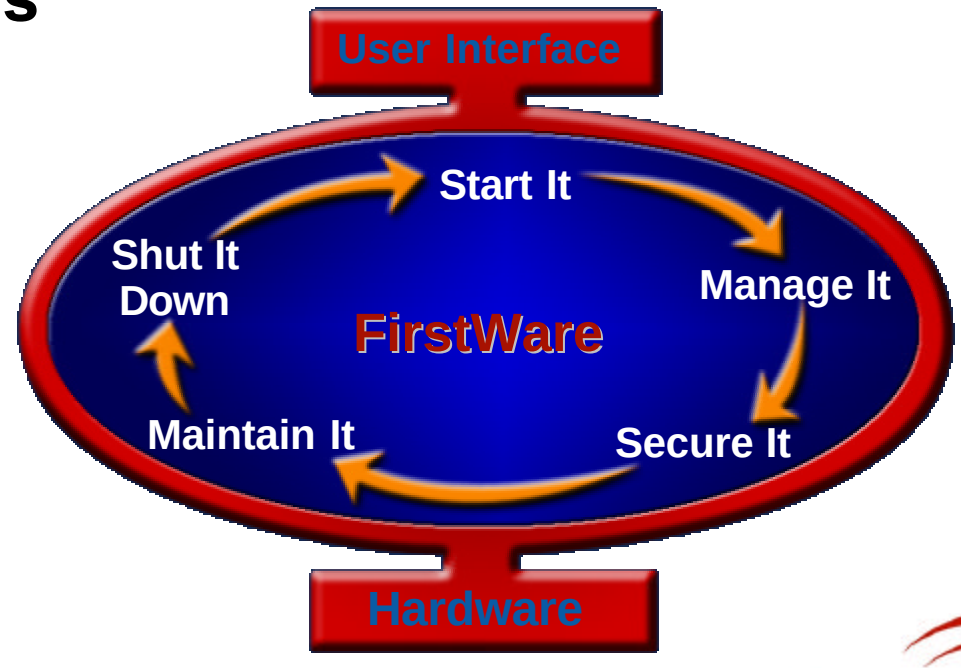
Our Products

FirstWare™ family of "built-in" and "instant-on" software that starts, manages, secures, maintains, and shuts down PCs and other digital devices



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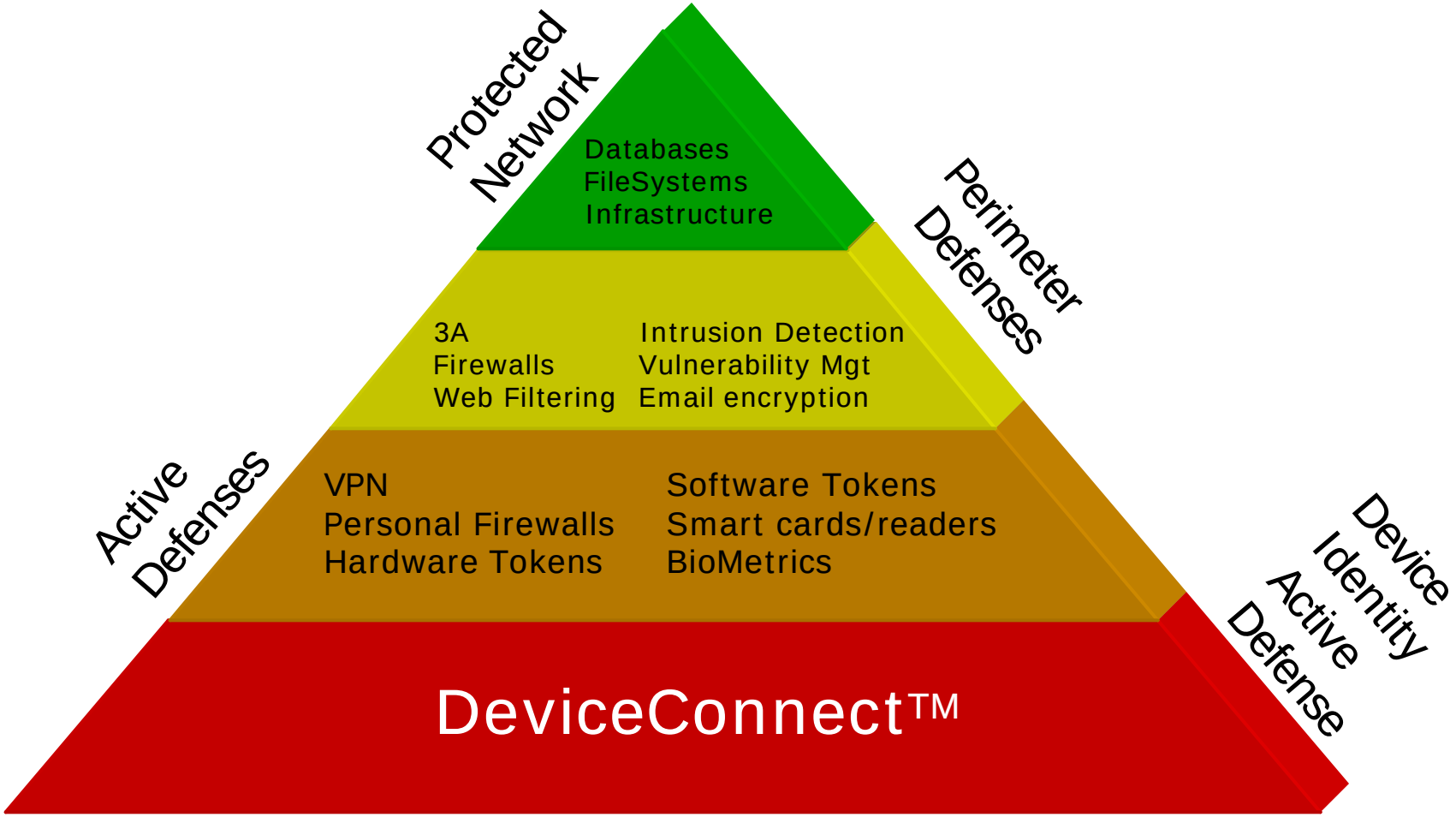
Elements of Security



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DeviceConnect™: Security Built In

- **Embedded two-factor authentication**
- **Rooted in BIOS**
- **Establishes “Root of Trust”**
- **Enables highly secure “Chain of Trust” on that base**

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Shortcomings Of Username/Password

- **Easy to guess usernames**
  - Based on first and last name
  - Often identical to email ID
  - Well known system administrative accounts:
    - “Administrator”, “root”, “Admin”, etc.
- **Easy to guess passwords**
  - People use familiar passwords (wife/children names, phone numbers, car types, etc)
  - Common-word passwords lead to “dictionary attacks”
  - Same password for everything
- **Easy to steal passwords**
  - Passwords are often written down by users
  - Easy to socially engineer passwords
  - Trojan Horse sniffers

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Choices For Stronger Authentication

Tokens

Smart Cards

Smart Card

BioMetrics

- **These tools can be expensive & complex**
  - **New hardware & software required**
  - **Administrative overhead to deploy and maintain**
  - **Changes to infrastructure**
  - **Training and support to users**
  - **Legacy and new systems need support**

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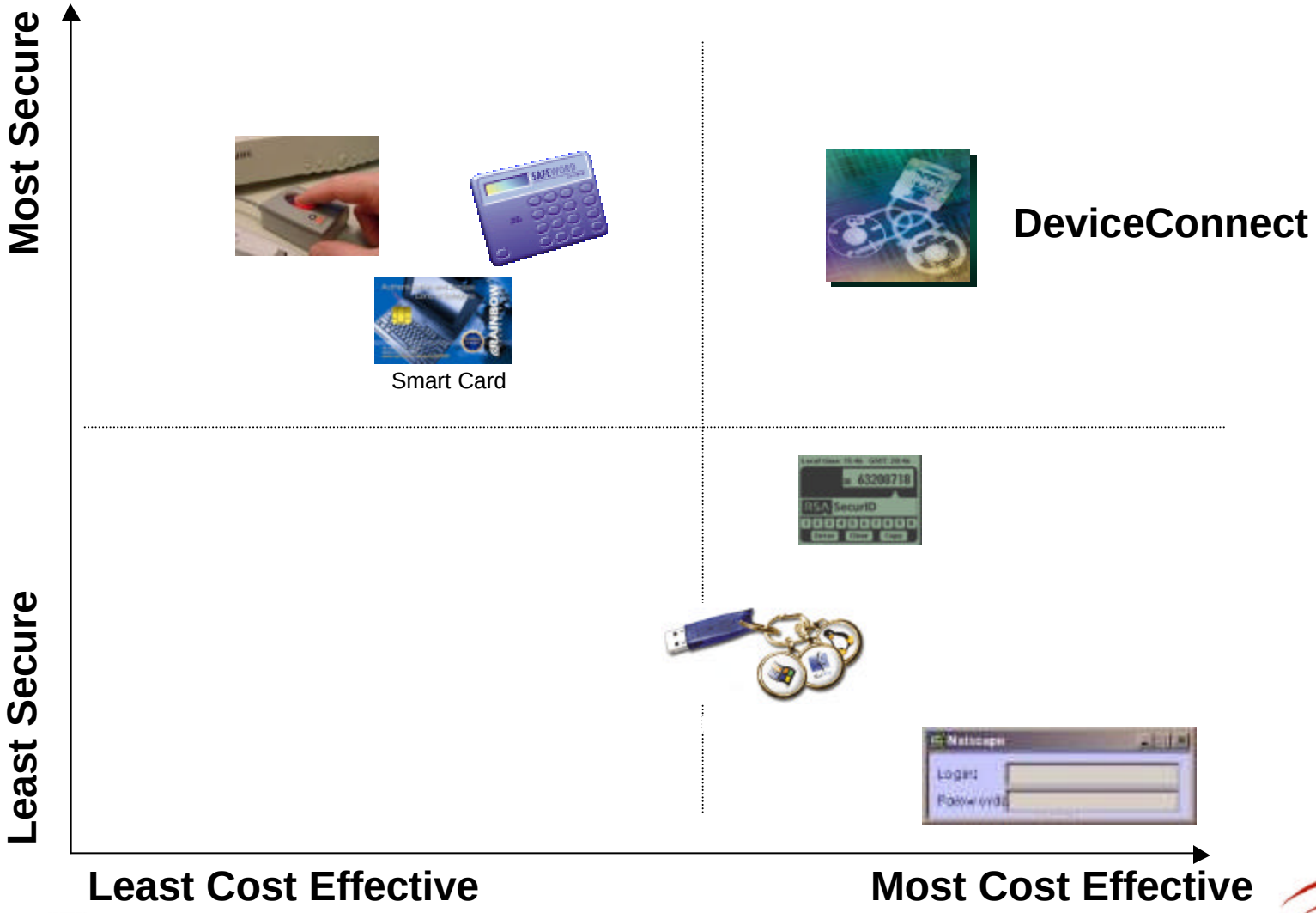
Comparison of Alternatives



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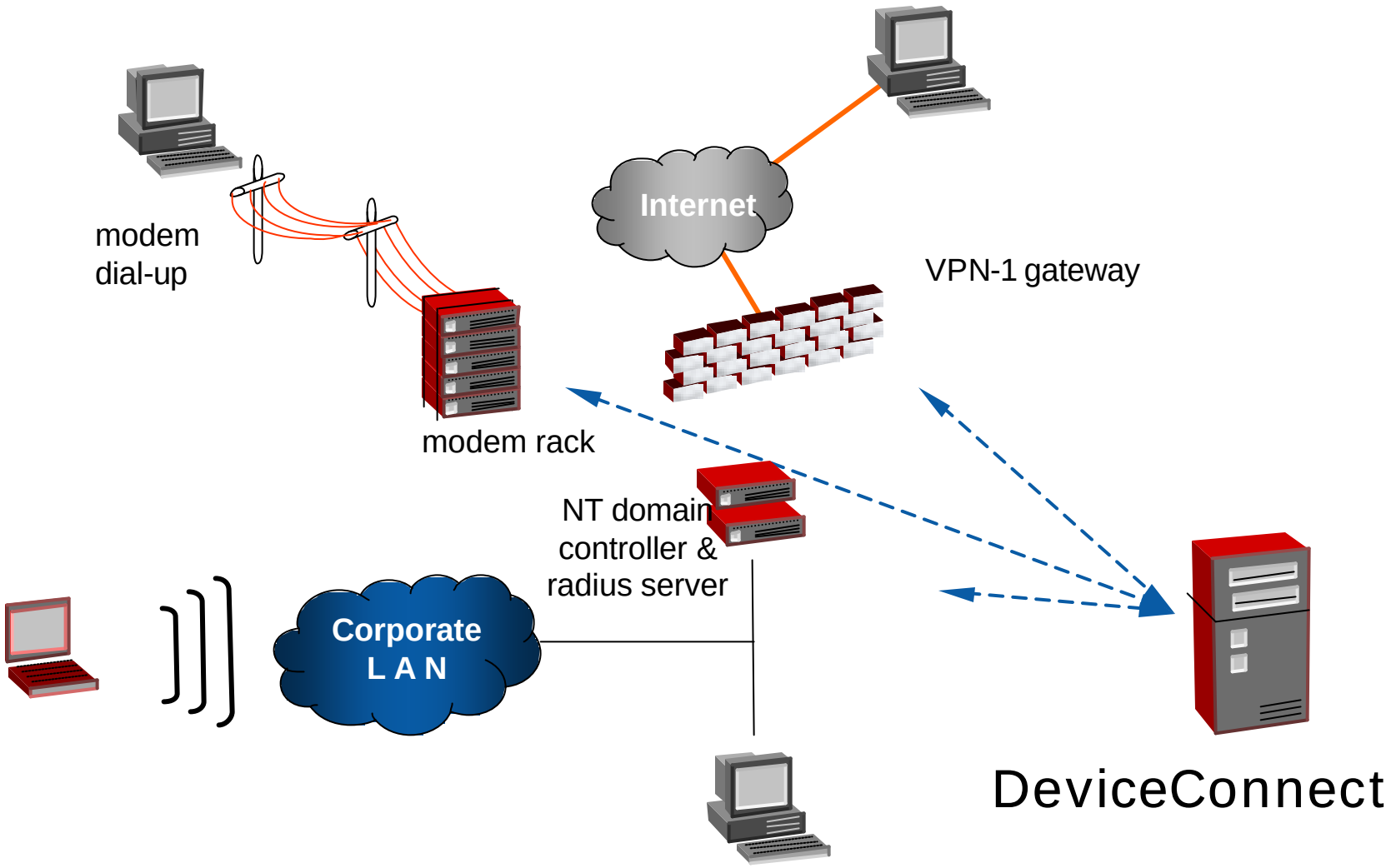
Now You Know Who's On Your Network



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Summary

- **Security is the biggest obstacle to Total Connectivity**
- **Firmware-based security rooted in the BIOS is the most secure method available**
- **Access to the “First Electron” gives Phoenix Technologies a unique ability to authenticate the platform and establish a chain of trust**

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- **See our demo!**

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